

A NEW AND UNUSUAL HELICOID SNAIL FROM  
LOS ANGELES COUNTY, CALIFORNIA

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A surprise was in store for malacologists when it was learned that a number of species and subspecies which we have been grouping with *Eremarionta*, a subgenus of *Micrarionta*, did not belong to that genus at all, but were more nearly related to the genus *Sonorella*. Anatomically, they were found to lack the dart-sac, mucus glands, and other subordinate structures that would indicate relationship with *Micrarionta* or other Helminthoglyptine snails. For this group, Dr. S. S. Berry (1943) created the genus *Sonorelix*, with *Micrarionta (Eremarionta) borregoensis* Berry as the type. This group is also characterized by a retiform sculpture of the embryonic shell.

There are two species of land snails in northern Lower California, *Micrarionta, inglesiana* Berry (1928) and *Micrarionta chacei* Willett (1940), which both authors doubtfully referred to the subgenus *Eremarionta*. Dr. Pilsbry (1939) pointed out the resemblance of their apical sculpture to that of *Helminthoglypta*. Recently, the anatomy of *inglesiana* has been studied by Dr. Berry and it was found to belong to *Sonorelix*, with certain distinguishing characters separating it from the typical subgenus. To this subgeneric group, Dr. Berry has given the name *Herpeteros* (1947).

During the past few years, numerous collecting expeditions have been made by the author to various parts of Southern California in search of land mollusks and considerable new material has come to light, including some unusual forms. Of these, the most amazing find was an undescribed species of the subgenus *Herpeteros* from Los Angeles County. It may be known as *SONORELIX (HERPETEROS) ANGELUS*, n. sp.

Shell helicoid, of moderate size, thin, moderately elevated; whorls 5, convex, gradually increasing to the body whorl which is moderately expanded; the last one-fourth of the body whorl descends moderately so that the aperture lies at a 50 degree angle with the axis of the shell. Base rounded; umbilicus small, one-tenth the maximum diameter of the shell, half covered by the reflected inner lip. Aperture nearly circular, oblique; outer lip slightly reflected, particularly at the base, not appreciably thickened. When viewed with 40x magnification, the embryonic whorl is seen to be covered with somewhat irregular closely-spaced papillæ with a suggestion of transverse arrangement. Incremental wrinkles begin on the second whorl and continue throughout the remainder of the shell. The above mentioned papillæ become sparser until they gradually disappear at the beginning of the fourth whorl. Beginning on the second half of the first whorl,



PLATE 23

*Sonorelix (Herpeteros) angelus* Gregg (Photos courtesy Los Angeles County Museum).

there are, superimposed on the finer papillation, larger elongate papillæ which are widely spaced and arranged both spirally and obliquely. These larger papillæ disappear at the end of the second whorl. On the upper surface of the last two whorls, there are traces of spiral striation. On the inferior surface of the body whorl are faint incremental lines, traces of spiral lines, and a strong papillation about the umbilicus. To the unaided eye, the entire shell has a smooth polished appearance, marked only by incremental lines.

Color light Saccardo's Umber<sup>1</sup> with occasional lighter radial lines marking rest periods. A chestnut band, about one mm. wide encircles the body whorl just above the periphery of the shell and is seen above the suture on the last half of the penultimate whorl. This band is bordered on either side by a somewhat narrower, indistinct band which is lighter in color than the body of the shell.

Max. diameter 20.0 mm., min. diam. 16.8 mm., alt. 13.7, umbilicus 2.0 mm.

Animal: Dorsum of the foot (specimen preserved in alcohol) Neutral Gray; sides of the foot Light Neutral Gray; sole Olive Buff, bordered with Light Neutral Gray; tentacles somewhat darker in color than the dorsum of the foot. The mantle is conspicuously colored with irregular black markings on a white background, thus resembling certain of the *Helminthoglypta*. After drowning, the entire foot was covered with a bright yellow mucus. This dissolved when the dead animal was placed in 25% isopropyl alcohol, leaving the solution brightly colored.

Upon opening the visceral cavity, certain distinguishing characters are noted. There is an absence of dart-sac and mucus glands. A well developed penis retractor muscle is inserted directly upon the apex of the penis. Both spermathecal diverticulum and epiphalic cæcum are well developed. A large verge fills the cavity of the penis.

<sup>1</sup>Capitalization indicates colors matched with those of Ridgway, Color Standards and Color Nomenclature.

The jaw is strong with six unequal ribs, strongly denticulating the convex margin. The radula has 50-1-50 teeth. The centrals are large with mesocone nearly as long as the basal plate. The laterals are wider. Both centrals and laterals are unicuspid. On the marginals the cusp is split into endocone and mesocone. Further out an ectocone appears.

Type locality: Hillsides on north side of the west end of Soledad Canyon, Los Angeles County, Calif. All specimens were taken during the months of February and March, 1947. They were found under dead yuccas (*Hesperoyucca whipplei*). They were found over a narrow area about 2.7 miles in length between points 1.2 and 3.9 miles from Solemint (western junction Soledad Canyon road with Mint Canyon Highway). All specimens found within 300 yards of the canyon floor. Altitude about 1,700 feet.

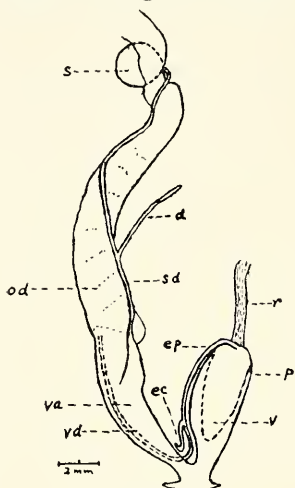


PLATE 24

*Sonorelix (Herpeteros) angelus* Gregg, anterior part of hermaphroditic system (*d*, spermathecal diverticulum; *ec*, epiphallic caecum; *ep*, epiphallus; *od*, oviduct; *p*, penis; *r*, penis retractor; *s*, spermatheca; *sd*, duct of spermatheca; *v*, verge; *va*, vagina; *vd*, vas deferens).

The type No. 3692a, author's collection. Paratypes in collections of Los Angeles County Museum (No. 1085), Dr. S. S. Berry (No. 14582), M. L. Walton, and the author (Nos. 3645, 3666, 3683, 3685, and 3692).

The anatomical characters together with the shell characters definitely place this snail in the subgenus *Herpeteros*. *S. angelus* is distinguished from *S. chacei* (*Micrarionta chacei* Willett, 1940) by its somewhat smaller size, less strongly descending body whorl, and by its half covered umbilicus. In *S. chacei* the umbilicus is completely covered. *S. inglesiana* is much flatter and the umbilicus is not covered.

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